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American Nuclear Society
Trinity Section

DINNER MEETING ANNOUNCEMENT

"Kilopower—Powering a NASA Mission to Mars"

Speaker: **Patrick R. McClure,** Kilopower Project Lead,
Los Alamos National Laboratory

Abstract: please see next page.

Biography: please see next page.

Place: **Drury Plaza Hotel, Santa Fe**
828 Paseo De Peralta, Santa Fe, NM 87501 (505-424-2175)

Directions: From Albuquerque, take I-25 N for about 65 miles to Exit 282 (St Francis Dr N). Stay on St Francis Dr for 3 miles until you reach W Alameda. Turn right onto W Alameda heading east, then left onto Paseo de Peralta. The entrance to the hotel will be on your left.

Date: **October 12, 2018**

Time: **6:00** Social Hour with Cash Bar

7:00 Buffet Dinner (Southwestern Buffet)

7:45 Speaker

Cost: *$35 per person (pre-paid by web sign-up in advance);*
$40 per person (not pre-paid, at the door);
$15 for students and children

We strongly encourage you to sign up and pay for this event by 9 Oct using the ANS Trinity PayPal payment account. Visit the "Calendar" page of our web site (http://local.ans.org/trinity/calendar.html) and select the appropriate payment button. You may use any credit card and do NOT need to have your own PayPal account to make the payment.

RSVP: If you do not use on-line payment, please RSVP no later than 9 Oct to:
Suzanne Dennis: suzanne.dennis16@gmail.com (301-415-7000) or
Travis Trahan: travistrahan@gmail.com (505-695-5078).

RSVP must be received by 9 Oct in order to give final numbers to the caterers. While we strongly encourage everyone to use on-line payment to sign up and prepay, an RSVP is a commitment to attend/pay at the door. We cannot afford "no shows" after the final count is given to the caterers, as the Section is partially subsidizing the cost of this event. If you cancel after 9 Oct, you will still be responsible for paying.

Abstract:

"Kilopower—Powering a NASA Mission to Mars"

The Kilopower Project was initiated by NASA's Space Technology Mission Directorate/Game Changing Development Program in fiscal year 2015 to demonstrate subsystem-level technology readiness of small space fission power in a relevant environment (Technology Readiness Level 5) for space science and human exploration power needs. The Kilopower Project centerpiece is the Kilopower Reactor Using Stirling Technology (KRUSTY) test, which consists of the development and testing of a ground technology demonstrator of a 1 kWe-class fission power system. The technologies developed and validated by the KRUSTY test are extensible to space fission power systems from 1 to 10 kWe, which can enable modular surface fission power systems for human exploration, as well as higher power future potential deep space science missions. The KRUSTY demonstration is cofounded by NASA and the Department of Energy (DOE) National Nuclear Security Administration (NNSA).

The KRUSTY test was completed on March 21st, 2018, at the National Critical Experiment Research Center (NCERC) inside the Device Assembly Facility (DAF) at the Nevada National Security Site (NNSS). The nuclear-heated test was conducted over a 2-day period and included steady-state and transient operations of the reactor and Stirling engines, meeting all test objectives. Initial reports from the team, indicate that the system performed exceptionally well and was very consistent with pre-test predictions. This is the first US space reactor power system test since the 1960s Space Nuclear Auxiliary Power (SNAP) Program, and hopefully the beginning of a new era in which nuclear reactors are utilized in a broad range of future NASA missions that couldn't be accomplished any other way.

Biography:

PATRICK MCCLURE is the project lead for the Kilopower project at Los Alamos. He helped define the groundbreaking approach to reactor development for Kilopower and he was the regulatory lead for the project. Mr. McClure is a former line manager for the Nuclear System Design and Analysis Group. He has been at LANL for 23 years performing nuclear design for very small reactor systems and safety analysis for a variety of reactor concepts with an emphasis on severe nuclear accidents like Three Mile Island and Fukushima. Mr. McClure has a B.S. from the University of Oklahoma and a M.S. from the University of New Mexico.